

# UNITED STATES PATENT OFFICE.

JOHN D. GOULD, OF BROOKLYN, NEW YORK.

## HEAT-DETECTOR FOR ELECTRIC FIRE-ALARM SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 601,730, dated April 5, 1898.

Application filed January 30, 1896. Serial No. 577,420. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. GOULD, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Heat-Detectors for Electric Fire-Alarm Systems, of which the following is a full, clear, and exact description.

This invention consists, in combination with a novelly constructed electric heat-detector or heat-detectors, of wires or other electric conductors, the two wires being located and extending or running side by side or close to each other in any suitable manner around a room or building or other place, as desired, the two wires or conductors being connected to an electric battery, one to each pole of the battery, but in open electric circuit, and a sounding device, all constructed and arranged together for operation, as hereinafter fully described; and the invention also consists, in combination with a novelly constructed electric heat-detector or heat-detectors, of two wires or other electric conductors, one of which is preferably made of any suitable fusible material that will fuse at the desired degree of heat, preferably a low degree, the two wires being located and extending or running side by side or close to each other in any suitable manner around a room or building or other place, as desired, the two wires or conductors being connected to an electric battery, one to each pole of the battery, but in open circuit, and a sounding device, all constructed and arranged together for operation, as hereinafter fully described, reference being had to the accompanying sheet of drawings, in which is illustrated the present invention in connection with a room in a building.

Figure 1 represents the sides of the room, with the walls, ceiling, and flooring in vertical section, with this invention applied thereto. Fig. 2 is a sectional view of one of the heat-detectors, illustrating its connection with the electric wires in an electric cable, the electric cable being in detail side view, showing its construction. Fig. 3 is a perspective view of a heat-detector adapted to be applied to the ceiling, electrically attached to the electric wires. Fig. 4 is a perspective view of one of the heat-detectors adapted to be applied to a side wall or other upright. Fig. 5 is a vertical section of Fig. 4, but show-

ing changes to be hereinafter referred to. Fig. 6 is a vertical section of one of the heat-detectors; Fig. 7, a plan view of Fig. 6; Figs. 8 and 9, detail sections at the corner of a wall and ceiling of a room and the manner of attachment of the heat-detectors to the same. Fig. 10 is a view of the heat-detector as shown in Fig. 2, having a wire-gauze or perforated covering over it.

Although the two wires forming electric connection with the heat-detectors can be arranged alongside of each other in any suitable manner and can be of any suitable wires or electric conductors, it is preferred to construct and arrange them in cable form, such as will be now described.

Fig. 2 illustrates sufficiently the construction of the cable A, and in such figure it is formed of a central wire B, preferably of copper, covered or coated with a metal C, such as lead, or compound of metal that will fuse at a low degree of heat. This fusible metal can be applied in any suitable manner to the central wire B. For instance, it can be run through a die in a fusible state with the copper wire, which will lay it even and smooth thereover and in a quick, satisfactory, and practical manner. Over this fusible metal is placed a coating or covering D of insulating material, preferably one that will fuse or burn in a flame at a low degree of heat, and preferably at a lower degree of heat than the fusible-metal covering will melt, and over this insulating material is wound a series of fine copper wires E, as many as desired, being wound, preferably, in long spiral form, and over these copper wires is another covering or coating F of insulating material, which can be like the inner insulating material D, or, preferably, one that is somewhat firmer and stronger, but yet that will fuse or burn at the desired low temperature.

G, H, and J represent the side walls of a room or building, two, H J, of which are in vertical section, and K and L the floor and ceiling, respectively, in cross-section, all of which is as usual in the construction of a room or building.

From a point M on the ceiling the cable runs along the ceiling and then down on the opposite wall J, as shown in Fig. 1.

The wire B and its fusible-metal covering C, making practically one wire or core-wire,